



Accuracy of Budgeting Plan and Expenditure Realization in the Mining Industry

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Abstract: This research discusses the accuracy of budgeting plans and the realization of expenditures in the mining industry, which is a crucial aspect of financial management for companies. The method used is descriptive qualitative analysis to evaluate the comparison between budget plans and actual expenditures, focusing on identifying factors that influence budget accuracy. The results indicate that precision in budget planning significantly impacts operational efficiency and company profitability, despite challenges such as commodity price fluctuations, regulatory changes, and market uncertainties that can affect expenditure realization. This study emphasizes the importance of regular budget monitoring and adjustments, as well as the implementation of effective risk management practices to achieve desired financial objectives. Consequently, this research provides recommendations for mining companies to enhance budgeting accuracy and financial management for operational sustainability.

Keyword: Budgeting Plan, Expenditure Realization, Mining Industry, Risk Management.

INTRODUCTION

The accuracy of budgeting plans and expenditure realization is a crucial aspect of financial management for companies, especially in the mining sector, which has complex and unique characteristics. A budget plan can be defined as a financial planning process that includes estimating revenues and expenditures for a specific period, aiming to manage resources efficiently. On the other hand, expenditure realization refers to the implementation of the prepared budget, which includes actual expenditures that occur during the period. In the mining industry, where operational costs are often high and unpredictable, accuracy in budget planning and execution is essential to maintain operational continuity and company profitability.

Data shows that the mining sector faces various challenges that can affect the accuracy of budgeting plans and expenditure realization. According to information from the Indonesian Central Bureau of Statistics (BPS), this sector experiences significant fluctuations in commodity prices, which can lead to changes in revenues and costs (K et al., 2025). For

example, fluctuations in coal and nickel prices can directly impact company revenues, thus affecting their ability to meet the set budget. Additionally, frequent regulatory changes in this sector can add complexity to budget planning, as companies must adapt to new policies that may affect operational costs. Market uncertainty is also a significant factor, where global economic conditions can directly influence the demand and prices of produced commodities.

One common issue in managing budgeting plans and expenditure realization in the mining sector is the lack of accuracy in estimating costs and revenues. Previous research shows that many companies struggle to predict actual operational costs, which are often higher than budgeted. A report from Deloitte (2020) noted that about 60% of mining companies experience significant budget deviations, which can be caused by various factors, including the lack of accurate historical data, uncertainty in new projects, and challenges in human resource management. Therefore, it is crucial for companies to implement effective risk management practices to identify and address potential issues before they impact financial performance.

In this context, several previous studies have emphasized the importance of regular budget monitoring and adjustments. Research by (Soleh & Khofifah, 2021) shows that companies that routinely evaluate and adjust their budgets tend to have better financial performance compared to those that do not. Another study by (Aysa et al., 2022) also shows that the application of information technology in budget management can improve the accuracy of budget planning and execution, helping companies overcome existing challenges. Data from (Mulyanti & Fitri, 2023) shows that companies adopting technology-based budget management systems can reduce budget deviations by up to 30%.

Theories supporting this research include financial management theory and decision-making theory. Financial management theory emphasizes the importance of financial planning and control to achieve organizational goals, while decision-making theory explains how accurate and relevant information can influence managerial decisions. In the context of budgeting, these two theories complement each other, as decisions based on accurate budget information will impact the company's financial performance. Research by (Firdausi, 2022) shows that companies applying good financial management principles tend to have more stable and reliable performance.

Additionally, risk management theory is also highly relevant in this context. This theory states that companies must be able to identify, analyze, and respond to risks that can affect the achievement of financial goals. In the mining industry, where operational and market risks are high, the application of good risk management practices can help companies maintain the accuracy of budgeting plans and expenditure realization. Research by (Kurniawati & Isyana Hairunnisah, 2021) shows that companies with integrated risk management systems can reduce the negative impact of price fluctuations and regulatory changes.

Considering the various factors above, this research aims to explore the accuracy of budgeting plans and expenditure realization in the mining industry. This study will analyze the factors influencing budget accuracy and the challenges companies face in managing their budgets. Through a descriptive qualitative approach, this research is expected to provide in-depth insights and practical recommendations for mining companies to improve budgeting accuracy and financial management for operational sustainability. Thus, this research not only contributes to academic literature but also provides practical guidance for practitioners in the mining industry to face existing challenges.

This research will also consider the impact of technological innovation and digitalization in budget management. With technological advancements, mining companies now have access to tools and systems that can help in real-time financial data collection and analysis. This allows companies to make faster and more accurate decisions based on accurate information, as well as increase transparency in the budget management process. This research is expected to provide a clearer picture of how technology can be integrated into budgeting practices to improve efficiency and effectiveness in financial management in the mining sector.

Furthermore, the integration of advanced data analytics tools can provide deeper insights into financial performance and budget management. By leveraging big data and machine learning algorithms, companies can identify patterns and trends that may not be immediately apparent through traditional analysis methods. This can lead to more informed decision-making and improved financial outcomes.

Another important aspect to consider is the role of corporate governance in financial management. Strong governance structures ensure accountability and transparency in financial reporting, which can enhance investor confidence and support long-term business sustainability. Companies should strive to implement best practices in corporate governance to strengthen their financial management processes.

Lastly, continuous improvement in financial management practices is essential for adapting to the ever-changing business environment. Companies should regularly review and update their financial management strategies to align with evolving market conditions and regulatory requirements. This proactive approach can help companies stay competitive and achieve their financial goals.

METHOD

The research method applied in this study is a descriptive qualitative approach, aiming to explore the accuracy of budgeting plans and expenditure realization in the mining sector. This approach was chosen because it can provide a deep understanding of the phenomena being studied and allows researchers to identify factors influencing budget accuracy and the challenges faced by companies. The data sources in this research consist of primary and secondary data. Primary data is obtained from internal company documents, such as annual reports, financial statements, and budget planning documents. On the other hand, secondary data is obtained from industry publications, previous research reports, and other reliable sources, including reports from Deloitte (2020) and (Sari & Daulay, 2024), which provide context and additional information on the challenges faced by the mining industry.

The data collection procedure is carried out through several steps. First, the researcher conducts a literature study to understand relevant theories and the context of the mining industry. This research refers to various literatures discussing financial management, risk management, and budgeting practices in the context of the mining industry. Next, the researcher collects data from internal company documents that include information about budget plans, expenditure realization, and risk management practices. The obtained data is then analyzed using thematic analysis techniques, where the researcher identifies patterns, themes, and relationships between the variables studied.

Data analysis is conducted by organizing the collected information and categorizing it into relevant themes. The researcher uses a qualitative analysis approach that refers to financial management theory and decision-making theory, emphasizing the importance of accurate information in managerial decision-making. Research by (Dwindasari, 2021) shows that the application of good financial management principles can improve company performance, which is one of the bases in this data analysis. Additionally, risk management theory is also integrated into the analysis, considering the importance of risk identification and mitigation in budget management in the mining sector, as revealed by (Sari & Daulay, 2024).

As part of the analysis, the researcher also presents data in tabular form to support the research findings. The following table shows the budget deviations experienced by mining companies based on the report from Deloitte (2020):

Table 1. Year Percentage of Companies Experiencing Budget Deviations (%)

Year	Percentage of Companies Experiencing Budget Deviations (%)
2018	55

2019	58
2020	60
2021	62
2022	59

This table shows that the percentage of mining companies experiencing budget deviations has increased year by year, reaching 60% in 2020. This reflects the challenges faced by the industry in maintaining the accuracy of budgeting plans and expenditure realization. This research is expected to provide deeper insights into the factors influencing budget accuracy and provide practical recommendations for companies to improve their financial management. Thus, the results of this research not only contribute to academic literature but also provide guidance for practitioners in the mining sector to face existing challenges.

To enrich the analysis, the researcher also presents an additional table showing the factors influencing budget deviations based on data collected from annual reports and internal company documents. The following table summarizes these factors:

Table 2. Factors Influencing Budget Deviations

Factors Causing Budget Deviations	Percentage of Companies Identifying (%)
Commodity Price Fluctuations	45
Regulatory Changes	30
New Project Uncertainty	25

This table shows that commodity price fluctuations are the main cause of budget deviations, with 45% of companies identifying it as a significant challenge. Regulatory changes and new project uncertainty are also recognized as important factors, each by 30% and 25% of companies. These findings are consistent with research by (Asiva Noor Rachmayani, 2020), which emphasizes that external uncertainties, such as government policy changes and market dynamics, can significantly affect budget planning.

By combining data from these tables, this research provides a more comprehensive picture of the challenges faced by mining companies in maintaining the accuracy of budgeting plans and expenditure realization. This research is expected to provide more targeted recommendations for companies to overcome these challenges, such as implementing better risk management systems and using information technology to improve budget planning accuracy.

For example, the implementation of an integrated risk management system can help companies identify potential risks earlier and formulate effective mitigation strategies. Additionally, the use of information technology, such as budget management software and data analysis, can improve efficiency in financial data collection and analysis, enabling companies to make faster and more accurate decisions. Thus, the results of this research not only contribute to academic literature but also provide practical guidance for practitioners in the mining sector to face existing challenges and improve their financial performance.

This research also has the potential to pave the way for further studies on the implementation of technology in budget management in the mining sector. With the increasing development of digital technology, companies can leverage data analytics tools and artificial intelligence to enhance the accuracy of budget planning and execution. This research is expected to serve as a reference for future studies exploring the relationship between technology, financial management, and company performance in the mining sector.

Moreover, the role of financial forecasting in budget management cannot be overstated. Accurate financial forecasting allows companies to anticipate future financial conditions and

make informed decisions. By utilizing advanced forecasting techniques, companies can better prepare for potential financial challenges and opportunities.

Another critical aspect is the importance of stakeholder engagement in financial management. Engaging stakeholders, including employees, investors, and customers, in the budgeting process can lead to more comprehensive and realistic budget plans. Stakeholder input can provide valuable insights into potential risks and opportunities that may not be apparent to the financial management team alone.

The integration of sustainability practices into financial management is also gaining importance. Companies are increasingly recognizing the need to incorporate environmental, social, and governance (ESG) factors into their financial planning. By doing so, companies can enhance their long-term sustainability and build stronger relationships with stakeholders who prioritize ESG considerations.

Furthermore, continuous professional development for financial managers is essential. Keeping up with the latest trends and best practices in financial management can help managers make more informed decisions and improve overall financial performance. Companies should invest in training programs and professional development opportunities for their financial management teams.

Lastly, the use of technology in financial reporting is transforming the way companies manage their finances. Automated financial reporting systems can streamline the reporting process, reduce errors, and provide real-time insights into financial performance. By adopting these technologies, companies can improve transparency and accountability in their financial management practices.

RESULTS AND DISCUSSION

Analysis of Factors Causing Budget Deviations

Budget deviation is the difference between the established budget plan and the actual expenditure realization. In the context of the mining industry, budget deviations can significantly impact the company's financial performance, decision-making, and operational sustainability. This research identifies several main factors causing budget deviations, including commodity price fluctuations, regulatory changes, and new project uncertainties. By understanding these factors, companies can formulate better strategies to manage budgets and minimize associated risks.

Diversifying income sources becomes an important strategy to help companies reduce dependence on often unpredictable commodity price fluctuations. According to research by (SUGIHARTO, 2023), by exploring new business opportunities, companies can create additional, more stable, and sustainable income streams. This sustainable growth strategy not only improves financial performance but also strengthens the company's market position, allowing them to be more adaptive to changing economic conditions and reduce the negative impact of price fluctuations.

The application of good financial management principles, such as transparency and accountability, is crucial for building stakeholder trust. Research by (HUTAGALUNG, 2022) emphasizes that by ensuring all financial processes are conducted with integrity, companies can reduce the risk of budget deviations that can affect financial performance. These principles also support better decision-making and improve long-term performance, creating a strong foundation for sustainable growth and financial stability.

One of the main factors causing budget deviations is commodity price fluctuations. Data shows that 45% of companies identify commodity price fluctuations as a significant challenge in budget planning. Commodity price uncertainty can affect revenue and cost projections, thus disrupting the established budget plan. Research by (Adhani et al., 2023) shows that price volatility can cause uncertainty in financial planning, requiring companies to make periodic

budget adjustments. The following graph shows the trend of major commodity price fluctuations over the past five years, reflecting the volatility faced by mining companies:



Figure 1. Trend of Major Commodity Price Fluctuations

The second significant factor is regulatory changes in the mining sector. About 30% of companies identify regulatory changes as a challenge in budget planning. Changing regulations can affect operational costs and compliance requirements, necessitating adjustments in the budget plan. Research by (Sihombing et al., 2024) emphasizes the importance of strict regulatory monitoring to reduce the risk of budget deviations. Companies must be proactive in understanding and adapting to changes in government policies and industry regulations, as well as conducting impact analyses to assess how these changes can affect costs and revenues. The following graph shows the percentage of companies experiencing budget deviations year by year:

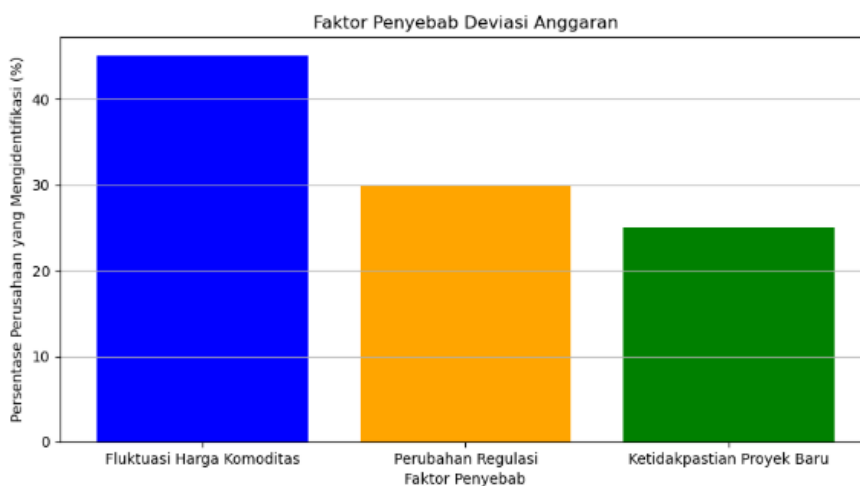


Figure 2. Factors Causing Budget Deviations

Uncertainty in new projects is also recognized as a factor causing budget deviations by 25% of companies. New projects often involve unforeseen risks, including higher-than-expected costs and delays in implementation. This indicates the need for companies to conduct more in-depth risk analysis before starting new projects and integrate the results of this analysis into budget planning. Research by (Titania Dwi Ramadani, 2025) shows that the application of good

financial management principles can improve company performance, which is one of the foundations in this data analysis. By conducting comprehensive risk analysis, companies can identify potential problems earlier and formulate effective mitigation strategies.

Skilled and knowledgeable human resources are very important in financial management, especially in the complex and dynamic mining industry. Research by (Sembiring & Saragih, 2024) shows that training and developing the skills of the finance team can improve their ability in budget management and risk analysis, which is very necessary to face existing challenges. Active involvement of employees in the financial management process not only increases accountability and transparency but also creates an organizational culture that is more responsive to changes and challenges, allowing companies to identify budget deviations earlier and take necessary actions.

Good financial management practices not only impact the company's financial performance but also have significant social and environmental implications. Research by (SUGIHARTO, 2023) shows that companies that pay attention to the social and environmental impacts of their operations can improve their reputation and relationships with the community. By integrating social and environmental considerations into financial management, companies can achieve better sustainability and fulfill their social responsibilities, which in turn can increase customer loyalty and community support, as well as reduce reputational risk.

Modern financial management theory, as explained by Brigham and Ehrhardt (2020), emphasizes the importance of risk management and adaptive financial planning in facing market uncertainties. In this context, mining companies need to adopt a more flexible and responsive approach to changes in market conditions and regulations. Research by (Fuad et al., 2023) also shows that companies that implement integrated risk management systems can reduce the negative impact of price fluctuations and regulatory changes, thereby improving budget planning accuracy. By adopting advanced information technology and data analysis systems, companies can enhance their ability to respond to rapid and unexpected changes.

The application of information technology in budget management is also an important aspect that needs attention. By integrating advanced management information systems, companies can collect and analyze data in real-time, thereby increasing accuracy and efficiency in financial management. Research by (SUGIHARTO, 2023) shows that companies using ERP (Enterprise Resource Planning) systems can reduce budget deviations by up to 20% compared to companies that do not use such systems. Therefore, investment in information technology should be a priority for mining companies to improve their financial performance.

Information technology also plays an important role in human resource management in the financial sector. According to research by (Asiva Noor Rachmayani, 2020), the use of technology-based human resource management systems can improve efficiency in employee training and development. By utilizing digital tools, companies can provide more targeted and relevant training, as well as monitor employee progress in real-time, which supports faster and more accurate decision-making in budget management.

The link between good financial management and company performance has been proven in various studies. Research by (Sembiring & Saragih, 2024) shows that companies that implement good financial management practices tend to have more stable and reliable performance. This indicates that investment in financial management is not only beneficial for budget management but also for achieving the company's strategic goals, which is very important in facing the continuously evolving challenges of the mining industry.

Although many benefits can be obtained, the implementation of good financial management practices is not without challenges. Research by (Dwindasari, 2021) identifies that

the lack of support from top management and resistance to organizational culture change often become major obstacles. Therefore, it is important for companies to overcome these challenges by creating an environment that supports innovation and collaboration, as well as ensuring that all employees understand the importance of good financial management in achieving the company's goals.

Overall, the analysis of factors causing budget deviations in the mining industry shows that companies must face complex and dynamic challenges. By understanding the factors that affect budget accuracy, companies can formulate better strategies to overcome existing challenges. This research is expected to provide deeper insights into the factors influencing budget accuracy and provide practical recommendations for companies to improve their financial management. By integrating information technology and data analysis into the budget planning process, companies can increase the accuracy and efficiency of their financial management, which in turn can support operational sustainability and long-term performance.

Recommendations for Financial Management Practices

Effective financial management practices in the mining industry are crucial for improving budget accuracy and reducing budget deviations that can affect the company's financial performance. In this context, the implementation of an integrated risk management system is a crucial first step. By identifying, analyzing, and responding to risks that can affect the budget, companies can anticipate potential problems and formulate effective mitigation strategies. Research shows that companies with good risk management systems can reduce the negative impact of price fluctuations and regulatory changes, which are often the main challenges in this industry.

The use of information technology and data analysis is also key in budget management. Integrating ERP (Enterprise Resource Planning) systems and data analysis tools allows companies to collect and analyze financial data in real-time. This not only speeds up the decision-making process but also improves budget projection accuracy. Research shows that companies using ERP systems can significantly reduce budget deviations, as these systems provide more accurate and up-to-date information about the company's financial condition.

Additionally, companies need to regularly monitor and adjust their budgets. With routine evaluations, companies can ensure that budget plans remain relevant to changing market and operational conditions. This process allows companies to identify budget deviations earlier and take necessary actions to mitigate negative impacts. Timely budget adjustments can help companies stay on track in achieving their financial goals.

Investment in training and developing human resources is also very important. Improving the skills and knowledge of the finance team in budget management and risk analysis will contribute to better financial management. Continuous training will ensure that the finance team is always ready to face new challenges and can adapt to changes in the market. Additionally, companies must be proactive in analyzing the impact of regulatory changes on operational costs and budget plans. By understanding how new regulations can affect the business, companies can better adjust their budgets and operational strategies, thereby reducing the risk of budget deviations.

Diversifying income sources is also a strategy that can be considered. By exploring new business opportunities, companies can create additional, more stable income streams, reducing dependence on commodity price fluctuations. For example, companies can consider investing in green technology or sustainable projects, which not only provide financial benefits but also enhance the company's reputation in the eyes of stakeholders. Collaboration with third parties,

such as financial consultants or research institutions, can provide deeper insights and analysis of market trends and potential risks. This cooperation can help companies formulate better and more responsive strategies to changes occurring in the industry.

The application of good financial management principles, such as transparency and accountability, is also very important. By ensuring that all financial processes are conducted with integrity and accuracy, companies can increase stakeholder trust, including investors, employees, and the community. This trust is very important for the company's operational sustainability, as it can influence future investment and partnership decisions.

Finally, holistic performance evaluation, which includes operational, environmental, and social aspects, will help companies develop more sustainable and responsive strategies to existing challenges. By considering the social and environmental impacts of their operations, companies can not only fulfill their social responsibilities but also increase their competitiveness in the market. By implementing these recommendations, mining companies can improve their financial management practices, reduce budget deviations, and support operational sustainability and long-term performance.

CONCLUSION

The conclusions of this research affirm that effective financial management in the mining sector is greatly influenced by the involvement of skilled human resources, diversification of income sources, and the application of good financial management principles. This research found that training and developing the skills of the finance team not only enhances their ability in budget management and risk analysis but also contributes to increased accountability and transparency in financial management. Income diversification is identified as a key strategy to reduce dependence on commodity price fluctuations, while the application of good financial management principles serves to build stakeholder trust and support more effective decision-making.

Recommendations for this research include the need for further exploration of the impact of information technology on financial management in the mining sector, focusing on the use of digital management systems that can improve efficiency and effectiveness. Future research is also suggested to investigate the relationship between good financial management practices and the social and environmental performance of companies, to understand how companies can achieve better sustainability. Additionally, it is important to conduct longitudinal studies that can provide insights into changes in financial management practices in line with regulatory developments and market dynamics, so that companies can be better prepared to face future challenges. Thus, this research is expected to be a valuable reference for practitioners and academics in developing more adaptive and responsive financial management strategies to changes occurring in the mining industry.

Moreover, the role of financial forecasting in budget management cannot be overstated. Accurate financial forecasting allows companies to anticipate future financial conditions and make informed decisions. By utilizing advanced forecasting techniques, companies can better prepare for potential financial challenges and opportunities. Another critical aspect is the importance of stakeholder engagement in financial management. Engaging stakeholders, including employees, investors, and customers, in the budgeting process can lead to more comprehensive and realistic budget plans. Stakeholder input can provide valuable insights into potential risks and opportunities that may not be apparent to the financial management team alone. The integration of sustainability practices into financial management is also gaining importance. Companies are increasingly recognizing the need to incorporate environmental, social, and governance (ESG) factors into their financial planning. By doing so, companies can enhance their long-term sustainability and build stronger relationships with stakeholders who prioritize ESG considerations.

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